



TRACKING VACCINE PREVENTABLE DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

Dramatic declines in the incidence of vaccine-preventable diseases have created a need for surveillance systems that are sensitive enough to detect rare cases and isolated outbreaks of vaccine-preventable diseases. As new vaccines are licensed and recommended, new strategies for monitoring the incidence of additional diseases are also needed. Some of the diseases that have been newly identified as vaccine-preventable are not easily monitored through existing public health surveillance systems. These diseases require development of new and more complex strategies for surveillance.

WHAT HAS CDC ACCOMPLISHED?

CDC provides leadership and guidance for vaccine-preventable disease surveillance, investigation, and outbreak control throughout the United States. In March 2005, CDC announced a major public health milestone—the elimination of the rubella virus in the U.S. Once a common disease in this country, rubella is now a rare threat. In spite of the remarkable achievement, the U.S. should continue its current efforts and vigilance against rubella and congenital rubella syndrome to ensure that elimination of rubella is maintained.

Illness from nine vaccine-preventable diseases has greatly decreased since the beginning of the 20th century, with decreases ranging from 83% (pertussis) to 98 % or greater (smallpox, diphtheria, tetanus, paralytic polio, measles, mumps, rubella, and *Haemophilus influenzae* type b). New vaccines recommended for use in adolescents and adults will be valuable tools for enhancing pertussis prevention and control and to achieve national health goals.

Surveillance challenges presented by newly licensed vaccines against diseases such as chickenpox (nationally notifiable since 2005), have led CDC to develop enhanced surveillance methods that include documentation of vaccine usage and the impact of vaccine recommendations. These data provided the basis for revisions in the 2007 childhood immunization schedule for varicella from one dose to two. Major advances against varicella have also been made for older adults in whom the virus often reactivates to cause shingles. A single dose of the newly licensed shingles vaccine is recommended for adults over age 60 years.

A new rotavirus vaccine is now included in the 2007 childhood immunization schedule. Worldwide, an estimated 600,000 children die of rotavirus diarrhea each year. Among U.S. children alone, the illness leads to an estimated 3 million cases of diarrhea, 500,000 outpatient visits, 65,000 hospitalizations, and 20-40 deaths each year, with associated annual healthcare and work loss costs estimated at more than \$1 billion. These data were critical in forming the foundation for development of rotavirus vaccines—both for children in developing countries and in the United States. As use of the vaccine increases, enhanced surveillance efforts will be essential for monitoring effectiveness and the need for additional preventive measures.

Accomplishments have also been made through the New Vaccine Surveillance Network. This network has documented the burden of disease due to influenza among children 6 to 23 months of age and the impact of influenza vaccine on reducing this disease burden.

WHAT ARE THE NEXT STEPS?

The need for enhanced surveillance to define disease burden and monitor vaccine impact continues. New approaches to surveillance to define disease burden and monitor vaccine impact continue. These include increased use of data from managed-care organizations, proprietary hospital discharge databases, state-based immunization registries, and laboratories. Globally, engaging partner support in developing countries can help expand immunization efforts and identify both successes and areas for targeted interventions.

February 2007

